

**REMARKS**

Applicant respectfully requests reconsideration in view of the amendment and following remarks. The applicant has amended the claims in order to overcome the 35 U.S.C. 112, first and second paragraph rejections.

Claims 1, 2, 19-23 and 25-44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 2, 19-22 and 25-44 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Claims 1, 2, 19-22, 25, 27, 28 and 33-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Ozcayir et al. U.S. Patent No. 5,618,334 ("Ozcayir"). Claim 26 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ozcayir. Claims 1, 2, 19-22, 24, 25, 27-30, 32-37 and 39 are rejected under 35 U.S.C. 102(a/e) as being anticipated by Helmer-Metzmann et al. U.S. Patent No. 5,834,566 ("Helmer-Metzmann"). Claim 26 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Helmer-Metzmann. Claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozcayir. Claims 32 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozcayir in view of Bikson et al. U.S. Patent No. 5,364,454 ("Bikson"). Claims 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozcayir in view of Kawakami et al. U.S. Patent No. 4,971,695 ("Kawakami"). Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Helmer-Metzmann. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Helmer-Metzmann in view of Bikson. Claims 28, 38 and 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Helmer-Metzmann in view of Kawakami. The applicant respectfully traverses these rejections.

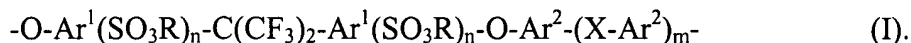
**35 U.S.C. 112, FIRST AND SECOND PARAGRAPH REJECTIONS**

Claims 1, 2, 19-23 and 25-44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 2, 19-22 and 25-44 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The applicant has amended the claims, and believes that the claims as amended are in compliance with 35 U.S.C. 112, first and second paragraphs. For the above reasons, these rejections should be withdrawn.

**REJECTIONS OVER THE PRIOR ART**

Claims 1, 2, 19-22, 25, 27, 28 and 33-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Ozcayir. Claim 26 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ozcayir. Claims 1, 2, 19-22, 24, 25, 27-30, 32-37 and 39 are rejected under 35 U.S.C. 102(a/e) as being anticipated by Helmer-Metzmann. Claim 26 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Helmer-Metzmann. Claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozcayir. Claims 32 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozcayir in view of Bikson. Claims 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozcayir in view of Kawakami. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Helmer-Metzmann. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Helmer-Metzmann in view of Bikson. Claims 28, 38 and 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Helmer-Metzmann in view of Kawakami.

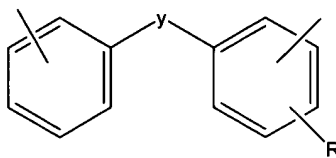
The applicant's claimed invention requires instant formula (I)



with the proviso that at least one **SO<sub>3</sub>R group is present in said backbone and n is an integer that is present and up to 3. Therefore, n is 1, 2 or 3.**

Formula (I) requires the presence of a  $-\text{C}(\text{CF}_3)_2-$  group in the polymer backbone which is sulfonated ( $\text{SO}_3\text{R}$ ). The polymer backbone is a polyether ketone. Furthermore, the applicant's claimed invention requires an ion exchange capacity of between 0.5 and 3.0 meq ( $-\text{SO}_3\text{H}$ )/g of polymer. This feature relates to the amount of  $\text{SO}_3$  in the polymer.

The material disclosed in Ozcayir is polyimide copolymers in which the comonomer is formed by  $\text{Ar}_2$ . The definition of  $\text{Ar}_2$  allows for



wherein Y can be  $-\text{C}(\text{CF}_3)_2-$  and R can be  $-\text{SO}_3\text{M}$  (see claim 1). The applicant's claimed invention is different from the Ozcayir because the Ozcayir requires a polyimide (see the title, Field of Invention, Summary of the Invention, Detailed Description of the Invention and claims) and the applicant's claimed invention is a sulfonated aromatic **polyetherketone** polymer. A polyetherketone polymer is not taught or suggested by the Ozcayir.

The material of the applicant's claim 1 shows a reduced swelling in water. Since water is being formed in a fuel cell, the swelling behavior is essential. The Ozcayir is further removed from the applicant's claimed invention because, the application in the Ozcayir differs from fuel cells (they use it for gas separation where the swelling behavior is uncritical).

Helmer-Metzmann discloses **polysulfones** being blended with the polyether ketones and not to the polyether ketone as such. The Examiner will note that **a polysulfone always requires**

**the presence of a —S<sub>0</sub>— group in the polymer backbone, but this group is not required in the applicant's formula (I).** The applicant does require the (SO<sub>3</sub>R) in the backbone which is not disclosed in the backbone of the Helmer-Metzmann. The applicant also requires an ion exchange capacity of between 0.5 and 3.0 meq (-SO<sub>3</sub>H)/g of polymer which is also not taught by Helmer-Metzmann. In view of the above, the applicant believes that their claimed invention is novel and unobvious over Helmer-Metzmann.

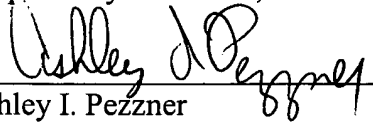
Kawakami refers to sulfonated polysulfones (polysulfone polymers having a —S<sub>0</sub>— group in the polymer backbone and carrying —SO<sub>3</sub>H group from sulfonation). There is no hint given in Kawakami (see in particular column 5, lines 13 to 45) which would suggest to a person of ordinary skill in the art to generalize the teaching given by Kawakami to all classes of polymers containing a —C(CF<sub>3</sub>)— group.

Bikson was just cited for the film casting. Therefore, the secondary reference does render the applicant's claimed invention obvious. None of these references alone or in combination anticipates or renders the applicant's claimed invention obvious.

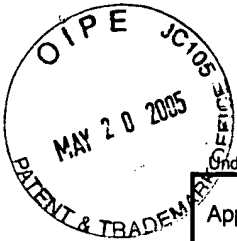
In view of the above amendment, applicant believes the pending application is in condition for allowance.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 03-2775, under Order No. 08577-00038-US from which the undersigned is authorized to draw.

Respectfully submitted,

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Application No. (if known): 09/914704

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Amendment in Response to Non- Final Office Action